



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/780,668	02/09/2001	Stephen D. Gillies	LEX-011	8264

21323 7590 04/23/2003

TESTA, HURWITZ & THIBEAULT, LLP
HIGH STREET TOWER
125 HIGH STREET
BOSTON, MA 02110

EXAMINER

SAUNDERS, DAVID A

ART UNIT	PAPER NUMBER
----------	--------------

1644

DATE MAILED: 04/23/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

280 665

Applicant(s)

GILLES et al

Examiner

SAUNDERS

Group/Art Unit

1644

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 12/30/02
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-2, 4-8, 11-25, 29, 34-37, 42, 44-47 is/are pending in the application.
- Of the above claim(s) 20-23, 42, 44 is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-2, 4-8, 11-19, 24-25, 29, 34-37, 45-46 is/are rejected.
- ☒ Claim(s) 47 is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☒ The proposed drawing correction, filed on 12/30/02 is ☒ approved ☐ disapproved by the examiner and draftsman.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____
 - ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

Amendment of 12/30/02 has been entered.

Claims 1-2, 4-8, 11-25, 29, 34-37, 42, and 44-47 are pending.

Claims 1-2, 4-8, 11-19, 24-25, 29, 34-37 and 45-47 are under examination.

The amendment has overcome the objection under 37 CFR 1.75(c) of claim 25.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Applicant's response has overcome the 112, 2nd para. rejections of record.

The amendment has overcome the 102(a) rejection over Gillies et al (WO 99/43713); the provisional 102(e) rejection over copending application 09/256,156, and the obviousness type double patenting rejection over the claims of 09/256,156.

The amendment has overcome the 102 (a) rejection over Gilles et al (cancer research and the 102(b) rejection over Strom et al (WO 96/18412).

Applicant's amendment has overcome 102 rejections based on Browne et al, Chang et al (5,908,626), Chang et al (5,723,125), and Gerrmann et al.

The following rejections are maintained:

Claims 1-2, 4-8, 11-19, 24-25, 29 and 34-37 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant's claims do not adequately describe the genus of fusion polypeptides, that have a longer circulating half-life.

> Applicant's claims merely describe the genus by biological function, i.e. a desired goal, rather than by structure or by physical/chemical properties. While applicant has amended the claims to define where the alteration is to be made, the claims do not give adequate description as to what kind of alteration/mutation is to be made within the defined location. See previous Office action (paper 10) at page 5, last paragraph. The only direction given in the specification or claims is that provided in claims 45-47, which are not rejected under the description requirement.

Claims 1-2, 5-8, 11-19, 24-25, 34-35 and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gillies et al (WO 99/43713) in view of Chang et al ('626 or '125).

The rejection of record (Paper 10, page 14) is maintained. Due to the change of dependency of claims 34-35 and 45-46, these claims have been added to the rejection, since what they recite is consistent with insertion of a gly-ser linker. Obviousness is on the basis that one would have been motivated to insert this linker in order to reduce immunogenicity of the fusion protein and thus, indirectly, increase that half-life of the fusion protein.

Applicant has argued that the two references are not combinable because Chang et al do not teach fusion proteins with the Ig Chain at the N-terminal and the non-Ig protein at the C-terminal. The examiner does not find this argument convincing of nonobviousness, because what Chang et al teach is a reduction of immunogenicity, due to presence of the gly-ser linker. One would have reasonably expected this linker to reduce immunogenicity of a fusion protein irrespective of the N-to C-terminal order of the fused polypeptides.

Art Unit: 1644

Furthermore, the amended language of instant claim 1, would not overcome Gillies et al alone. Gillies et al show fusion proteins with an IgG chain at the N-terminal and a non-IgG protein at the C-terminal end, as recited in amended claim 1 (e.g. page 4, lines 4+ and Example 1). Gillies et al teach that the serum half-life may be extended and the FcR binding activity reduced by substituting a C.gamma.4 region in lieu of a C.gamma.1 region (page 2, lines 21+ and Example 1). Inspection of Fig. 2B shows that a C.gamma.4 region differs from a C.gamma.1 region by an amino acid substitution at position 442, which is within 10 residues of the C-terminal end thereof. Thus the fusion construct of Example 1 anticipates. Comprising language of claim 1 opens the claim scope to include all of the other changes at positions more than 10 residues from the C-terminal, when replacing a C.gamma.1 region with a C.gamma.4 region. This change of IgG subclass shown in Example 1 is consistent with dependent claims 5-8, 11-14, 25, 35 and 45-46.

Applicant's urgings of 12/30/02 have been considered but are unconvincing.

Applicant's amendment has necessitated the following new basis of objection:

Claim 47 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 47 fails to limit have claim 46 because claim 47 recites "Ala", which is not recited in the Markush group of claim 46.

Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 29 "said first polypeptide" and "said second polypeptide" lack antecedent basis.

Patent 6,444,792, (Gray et al) is cited as of interest. This shows CTLA4-IgG fusion proteins. As with Gillies et al, Gray et al show that replacement of a C.gamma.1 region with a C.gamma.4 region enhances circulating half-life and decreases binding to FcR receptors. Gray et al do not teach fusion proteins having the IgG Chain at the N-terminal and the non-IgG protein at the C-terminal. Gray et al are thus not cited.

No new reference has been cited; this action is properly made final.

Non-elected claims 20-23 42 and 44 should be cancelled in any after-final response.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Saunders whose telephone number is (703) 308-3976. The examiner can normally be reached on Monday to Thursday from 8 AM to 5:30 PM and alternative Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (703) 308-3973. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

Saunders/LR
March 21, 2003

David A. Saunders
DAVID SAUNDERS
PRIMARY EXAMINER
ART UNIT 182/1644